

9.7 Practice B (2024 version)

HIGHLIGHTED ARE
SPECIAL CASES WHEN
A ≠ 1

Date _____

Period _____

Factor Special Cases:

1) $x^2 - 10x + 25$

$$(x-5)(x-5)$$

2) $16x^2 + 24x + 9$

$$(4x+3)(4x+3)$$

Remember to
mentally
multiply

3) $x^2 - 36$

$$(x+6)(x-6)$$

4) $25x^2 - 81$

$$(5x-9)(5x+9)$$

5) $16x^2 - 40x + 25$

$$(4x-5)(4x-5)$$

6) $16x^2 - 25$

$$(4x-5)(4x+5)$$

Factor each completely:

STEP 1 - FACTOR OUT GCF (Remember to mentally multiply!!)
STEP 2 - FINISH FACTORING (MUST INCLUDE GCF)

7) $3x^2 - 9x - 30$

$$3(x^2 - 3x - 10)$$

$$\begin{array}{r} 1 \ 10 \\ 2 \ 5 \end{array}$$

$$3(x+2)(x-5)$$

8) $2x^2 - 20x + 42$

$$2(x^2 - 10x + 21)$$

$$\begin{array}{r} 1 \ 21 \\ 3 \ 7 \end{array}$$

$$2(x-3)(x-7)$$

9) $-3x^2 + 18x + 81$

$$-3(x^2 - 6x - 27)$$

$$\begin{array}{r} 1 \ 27 \\ 3 \ 9 \end{array}$$

$$-3(x+3)(x-9)$$

10) $-5x^2 - 45x - 90$

$$-5(x^2 + 9x + 18)$$

$$\begin{array}{r} 1 \ 18 \\ 2 \ 9 \\ 3 \ 6 \end{array}$$

$$-5(x+3)(x+6)$$

11) $-4x^2 + 32x + 80$

$$-4(x^2 - 8x - 20)$$

$$\begin{array}{r} 1 \ 20 \\ 2 \ 10 \\ 4 \ 5 \end{array}$$

$$-4(x+2)(x-10)$$

#'s 1-10

Circle final answer
in factor form

Solve each equation by factoring. **Do calc checks (check ALL SOLUTIONS)**

← **DON'T NEED TO SHOW**

12) $x^2 - 49 = 0$

$(x-7)(x+7) = 0$

$x-7=0$

$x=7$

$x+7=0$

$x=-7$

$\begin{array}{r} 149 \\ 77 \end{array}$

13) $x^2 - 2x - 48 = 0$

$(x+6)(x-8) = 0$

$x+6=0$

$x=-6$

$x-8=0$

$x=8$

$\begin{array}{r} 148 \\ 224 \\ 316 \\ 412 \\ \hline 68 \end{array}$

14) $x^2 - 6x + 9 = 0$

$(x-3)(x-3) = 0$

$x-3=0$

$x=3$

$\begin{array}{r} 19 \\ 33 \end{array}$

15) $x^2 - 8x + 12 = 0$

$(x-2)(x-6) = 0$

$x-2=0$

$x=2$

$x-6=0$

$x=6$

$\begin{array}{r} 112 \\ 26 \\ \hline 34 \end{array}$

16) $4x^2 - 12x + 9 = 0$

$(2x-3)(2x-3) = 0$

$2x-3=0$

$2x = \frac{3}{2}$

$x = \frac{3}{2} \text{ or } 1.5$

17) $4x^2 - 9 = 0$

$(2x+3)(2x-3) = 0$

$2x+3=0$

$2x = -3$

$x = -1.5$

$2x-3=0$

$2x = 3$

$x = 1.5$

Solve by completely factoring and check all solutions.

(1st step is to always factor out any GCF- COMMON FACTOR)

18) $3x^3 + 9x^2 - 30x = 0$

$3x(x^2 + 3x - 15) = 0$

$3x(x+5)(x-2) = 0$

$3x=0$

$x=0$

C: $0=0 \checkmark$

$x+5=0$

$x=-5$

C: $0=0 \checkmark$

$x-2=0$

$x=2$

C: $0=0 \checkmark$

